

NASA INVENTIONS AND CONTRIBUTIONS BOARD  
SPACE ACT AWARD CASE REEVALUATION FORM

<i>NASA Case Number</i>	<i>Title</i>	<i>Date</i>
ARC- 15053	MAPGEN: Mixed-Initiative Activity Plan Generation	April 3, 2006

<i>Contributor Name</i>	<i>Employer</i>	<i>Percentage of Contribution</i>
Paul Morris	NASA Ames	12
Ari Jonsson	RIACS/NASA Ames	12
John Bresina	NASA Ames	12
Bob Kanefsky	QSS Inc/NASA Ames	12
Kanna Rajan	NASA Ames	12

**Change in Case Status:**

Has there been a significant change in the value of this contribution since the last evaluation? Please elaborate by describing the increased significance from a technological, scientific, humanitarian or commercial point of view. Has further development of this contribution occurred? Has usage by NASA, other government agencies or commercial entities increased? Describe any enhancements.

MAPGEN (Mixed-initiative Activity Plan GENerator), an advanced multi-mission system for building and editing activity plans for spacecraft, has been **used continuously since January 18<sup>th</sup>, 2004**, to build daily activity plans for Spirit and Opportunity, the **Mars Exploration Rovers**. In addition to being the first Artificial Intelligence based system to be used in operating a spacecraft on the surface of another planet, the tool has made a significant impact on how distant science spacecraft are operated. MAPGEN has made it possible to build spacecraft plans that accomplish more science and better reflect the desires and intent of scientists; furthermore, it has made it possible to quickly adapt plans to new science and engineering information, thus reducing planning time.

The Artificial Intelligence planning technology validated in MAPGEN has been recognized as a key capability for future planetary exploration missions, and is **baselined** for both the **2007 Phoenix** lander and the **2011 Mars Science Laboratory** rover missions. MAPGEN also has a great deal of promise in other applications, both within NASA and in the commercial sector. The technology has proven its usefulness, is being applied to key future missions, and is being developed and evaluated for a variety of applications.

**Primary Evaluator**

Printed Name and Signature	Title	Comments	Date
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**NASA Technical Management**

Printed Name and Signature	Title	Comments	Date
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**Awards Liaison Officer**

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